

SEQUENCE LISTING

<110> Curtis, Rory A.J.

<120> NOVEL MEMBERS OF THE CAPSAICIN/VANILLOID RECEPTOR
FAMILY OF PROTEINS AND USES THEREOF

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<151> 1998-11-13

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Leu His Ala Leu Val Glu Val Ala Asp Asn Thr Ala Asp Asn Thr Lys	
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gatgcagcag gaggccagag gacagagcag aggatctttc caaccacatc tgctggctct 2722

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 Lys Phe Ala Pro Gln Ile Arg Val Asn Leu Asn Tyr Arg Lys Gly Thr
 50 55 60
 Gly Ala Ser Gln Pro Asp Pro Asn Arg Phe Asp Arg Asp Arg Leu Phe
 65 70 75 80
 Asn Ala Val Ser Arg Gly Val Pro Glu Asp Leu Ala Gly Leu Pro Glu
 85 90 95
 Tyr Leu Ser Lys Thr Ser Lys Tyr Leu Thr Asp Ser Glu Tyr Thr Glu
 100 105 110
 Gly Ser Thr Gly Lys Thr Cys Leu Met Lys Ala Val Leu Asn Leu Lys
 115 120 125
 Asp Gly Val Asn Ala Cys Ile Leu Pro Leu Leu Gln Ile Asp Arg Asp
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 Ser Gly Asn Pro Gln Pro Leu Val Asn Ala Gln Cys Thr Asp Asp Tyr
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 Tyr Arg Gly His Ser Ala Leu His Ile Ala Ile Glu Lys Arg Ser Leu
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 Gln Cys Val Lys Leu Leu Val Glu Asn Gly Ala Asn Val His Ala Arg
 180 185 190
 Ala Cys Gly Arg Phe Phe Gln Lys Gly Gln Gly Thr Cys Phe Tyr Phe
 195 200 205
 Gly Glu Leu Pro Leu Ser Leu Ala Ala Cys Thr Lys Gln Trp Asp Val
 210 215 220
 Val Ser Tyr Leu Leu Glu Asn Pro His Gln Pro Ala Ser Leu Gln Ala
 225 230 235 240
 Thr Asp Ser Gln Gly Asn Thr Val Leu His Ala Leu Val Met Ile Ser
 245 250 255
 Asp Asn Ser Ala Glu Asn Ile Ala Leu Val Thr Ser Met Tyr Asp Gly
 260 265 270
 Leu Leu Gln Ala Gly Ala Arg Leu Cys Pro Thr Val Gln Leu Glu Asp
 275 280 285
 Ile Arg Asn Leu Gln Asp Leu Thr Pro Leu Lys Leu Ala Ala Lys Glu
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 Gly Lys Ile Glu Ile Phe Arg His Ile Leu Gln Arg Glu Phe Ser Gly
 305 310 315 320
 Leu Ser His Leu Ser Arg Lys Phe Thr Glu Trp Cys Tyr Gly Pro Val
 325 330 335
 Arg Val Ser Leu Tyr Asp Leu Ala Ser Val Asp Ser Cys Glu Glu Asn

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Asp	Leu	Leu	Ile	Pro	Lys	Phe	Phe	Leu	Asn	Phe	Leu	Cys	Asn	Leu	Ile
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Tyr	Met	Phe	Ile	Phe	Thr	Ala	Val	Ala	Tyr	His	Gln	Pro	Thr	Leu	Lys
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Lys	Gln	Ala	Ala	Pro	His	Leu	Lys	Ala	Glu	Val	Gly	Asn	Ser	Met	Leu
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Leu	Thr	Gly	His	Ile	Leu	Ile	Leu	Leu	Gly	Gly	Ile	Tyr	Leu	Leu	Val
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Thr	Val	Val	Ser	Gln	Val	Leu	Cys	Phe	Leu	Ala	Ile	Glu	Trp	Tyr	Leu
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Pro	Leu	Leu	Val	Ser	Ala	Leu	Val	Leu	Gly	Trp	Leu	Asn	Leu	Leu	Tyr
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Lys	Val	Ile	Leu	Arg	Asp	Leu	Leu	Arg	Phe	Leu	Leu	Ile	Tyr	Leu	Val
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Phe	Leu	Phe	Gly	Phe	Ala	Val	Ala	Leu	Val	Ser	Leu	Ser	Gln	Glu	Ala
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Trp	Arg	Pro	Glu	Ala	Pro	Thr	Gly	Pro	Asn	Ala	Thr	Glu	Ser	Val	Gln
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Pro	Met	Glu	Gly	Gln	Glu	Asp	Glu	Gly	Asn	Gly	Ala	Gln	Tyr	Arg	Gly
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Ile	Leu	Glu	Ala	Ser	Leu	Glu	Leu	Phe	Lys	Phe	Thr	Ile	Gly	Met	Gly
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Leu	Leu	Leu	Ala	Tyr	Val	Leu	Leu	Thr	Tyr	Ile	Leu	Leu	Leu	Asn	Met
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Leu	Ile	Ala	Leu	Met	Ser	Glu	Thr	Val	Asn	Ser	Val	Ala	Thr	Asp	Ser
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Trp	Ser	Ile	Trp	Lys	Leu	Gln	Lys	Ala	Ile	Ser	Val	Leu	Glu	Met	Glu
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Asn Gly Tyr Trp Trp Cys Arg Lys Lys Gln Arg Ala Gly Val Met Leu
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Thr Val Gly Thr Lys Pro Asp Gly Ser Pro Asp Glu Arg Trp Cys Phe
  690                                700
Arg Val Glu Glu Val Asn Trp Ala Ser Trp Glu Gln Thr Leu Pro Thr
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Leu Cys Glu Asp Pro Ser Gly Ala Gly Val Pro Arg Thr Leu Glu Asn
  725                                730                                735
Pro Val Leu Ala Ser Pro Pro Lys Glu Asp Glu Asp Gly Ala Ser Glu
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Glu Asn Tyr Val Pro Val Gln Leu Leu Gln Ser Asn
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gga ggc caa gaa gat ggc tct gag gcg gac aga gga aag ctg gat ttt 96
Gly Gly Gln Glu Asp Gly Ser Glu Ala Asp Arg Gly Lys Leu Asp Phe
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ggg agc ggg ctg cct ccc atg gag tca cag ttc cag ggc gag gac cgg 144
Gly Ser Gly Leu Pro Pro Met Glu Ser Gln Phe Gln Gly Glu Asp Arg
  35                                40                                45

aaa ttc gcc cct cag ata aga gtc aac ctc aac tac cga aag gga aca 192
Lys Phe Ala Pro Gln Ile Arg Val Asn Leu Asn Tyr Arg Lys Gly Thr
  50                                55                                60

ggt gcc agt cag ccg gat cca aac cga ttt gac cga gat cgg ctc ttc 240
Gly Ala Ser Gln Pro Asp Pro Asn Arg Phe Asp Arg Asp Arg Leu Phe
  65                                70                                75                                80

aat gcg gtc tcc cgg ggt gtc ccc gag gat ctg gct gga ctt cca gag 288
Asn Ala Val Ser Arg Gly Val Pro Glu Asp Leu Ala Gly Leu Pro Glu
  85                                90                                95

tac ctg agc aag acc agc aag tac ctc acc gac tcg gaa tac aca gag 336
Tyr Leu Ser Lys Thr Ser Lys Tyr Leu Thr Asp Ser Glu Tyr Thr Glu
  100                                105                                110

ggc tcc aca ggt aag acg tgc ctg atg aag gct gtg ctg aac ctt aag 384
Gly Ser Thr Gly Lys Thr Cys Leu Met Lys Ala Val Leu Asn Leu Lys
  115                                120                                125

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gac gga gtc aat gcc tgc att ctg cca ctg ctg cag atc gac agg gac	432
Asp Gly Val Asn Ala Cys Ile Leu Pro Leu Leu Gln Ile Asp Arg Asp	
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tct ggc aat cct cag ccc ctg gta aat gcc cag tgc aca gat gac tat	480
Ser Gly Asn Pro Gln Pro Leu Val Asn Ala Gln Cys Thr Asp Asp Tyr	
145 150 155 160	
tac cga ggc cac agc gct ctg cac atc gcc att gag aag agg agt ctg	528
Tyr Arg Gly His Ser Ala Leu His Ile Ala Ile Glu Lys Arg Ser Leu	
165 170 175	
cag tgt gtg aag ctc ctg gtg gag aat ggg gcc aat gtg cat gcc cgg	576
Gln Cys Val Lys Leu Leu Val Glu Asn Gly Ala Asn Val His Ala Arg	
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gcc tgc ggc cgc ttc ttc cag aag ggc caa ggg act tgc ttt tat ttc	624
Ala Cys Gly Arg Phe Phe Gln Lys Gly Gln Gly Thr Cys Phe Tyr Phe	
195 200 205	
ggt gag cta ccc ctc tct ttg gcc gct tgc acc aag cag tgg gat gtg	672
Gly Glu Leu Pro Leu Ser Leu Ala Ala Cys Thr Lys Gln Trp Asp Val	
210 215 220	
gta agc tac ctc ctg gag aac cca cac cag ccc gcc agc ctg cag gcc	720
Val Ser Tyr Leu Leu Glu Asn Pro His Gln Pro Ala Ser Leu Gln Ala	
225 230 235 240	
act gac tcc cag ggc aac aca gtc ctg cat gcc cta gtg atg atc tcg	768
Thr Asp Ser Gln Gly Asn Thr Val Leu His Ala Leu Val Met Ile Ser	
245 250 255	
gac aac tca gct gag aac att gca ctg gtg acc agc atg tat gat ggg	816
Asp Asn Ser Ala Glu Asn Ile Ala Leu Val Thr Ser Met Tyr Asp Gly	
260 265 270	
ctc ctc caa gct ggg gcc cgc ctc tgc cct acc gtg cag ctt gag gac	864
Leu Leu Gln Ala Gly Ala Arg Leu Cys Pro Thr Val Gln Leu Glu Asp	
275 280 285	
atc cgc aac ctg cag gat ctc acg cct ctg aag ctg gcc gcc aag gag	912
Ile Arg Asn Leu Gln Asp Leu Thr Pro Leu Lys Leu Ala Ala Lys Glu	
290 295 300	
ggc aag atc gag att ttc agg cac atc ctg cag cgg gag ttt tca gga	960
Gly Lys Ile Glu Ile Phe Arg His Ile Leu Gln Arg Glu Phe Ser Gly	
305 310 315 320	
ctg agc cac ctt tcc cga aag ttc acc gag tgg tgc tat ggg cct gtc	1008
Leu Ser His Leu Ser Arg Lys Phe Thr Glu Trp Cys Tyr Gly Pro Val	
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cgg gtg tcg ctg tat gac ctg gct tct gtg gac agc tgt gag gag aac	1056
Arg Val Ser Leu Tyr Asp Leu Ala Ser Val Asp Ser Cys Glu Glu Asn	
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Ser Val Leu Glu Ile Ile Ala Phe His Cys Lys Ser Pro His Arg His	
355 360 365	

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Arg Met Val Val Leu Glu Pro Leu Asn Lys Leu Leu Gln Ala Lys Trp	
370 375 380	
gat ctg ctc atc ccc aag ttc ttc tta aac ttc ctg tgt aat ctg atc	1200
Asp Leu Leu Ile Pro Lys Phe Phe Leu Asn Phe Leu Cys Asn Leu Ile	
385 390 395 400	
tac atg ttc atc ttc acc gct gtt gcc tac cat cag cct acc ctg aag	1248
Tyr Met Phe Ile Phe Thr Ala Val Ala Tyr His Gln Pro Thr Leu Lys	
405 410 415	
aag cag gcc gcc cct cac ctg aaa gcg gag gtt gga aac tcc atg ctg	1296
Lys Gln Ala Ala Pro His Leu Lys Ala Glu Val Gly Asn Ser Met Leu	
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Leu Thr Gly His Ile Leu Ile Leu Leu Gly Gly Ile Tyr Leu Leu Val	
435 440 445	
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Gly Gln Leu Trp Tyr Phe Trp Arg Arg His Val Phe Ile Trp Ile Ser	
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Phe Ile Asp Ser Tyr Phe Glu Ile Leu Phe Leu Phe Gln Ala Leu Leu	
465 470 475 480	
aca gtg gtg tcc cag gtg ctg tgt ttc ctg gcc atc gag tgg tac ctg	1488
Thr Val Val Ser Gln Val Leu Cys Phe Leu Ala Ile Glu Trp Tyr Leu	
485 490 495	
ccc ctg ctt gtg tct gcg ctg gtg ctg ggc tgg ctg aac ctg ctt tac	1536
Pro Leu Leu Val Ser Ala Leu Val Leu Gly Trp Leu Asn Leu Leu Tyr	
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tat aca cgt ggc ttc cag cac aca ggc atc tac agt gtc atg atc cag	1584
Tyr Thr Arg Gly Phe Gln His Thr Gly Ile Tyr Ser Val Met Ile Gln	
515 520 525	
aag gtc atc ctg cgg gac ctg ctg cgc ttc ctt ctg atc tac tta gtc	1632
Lys Val Ile Leu Arg Asp Leu Leu Arg Phe Leu Leu Ile Tyr Leu Val	
530 535 540	
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Phe Leu Phe Gly Phe Ala Val Ala Leu Val Ser Leu Ser Gln Glu Ala	
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Trp Arg Pro Glu Ala Pro Thr Gly Pro Asn Ala Thr Glu Ser Val Gln	
565 570 575	
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Pro Met Glu Gly Gln Glu Asp Glu Gly Asn Gly Ala Gln Tyr Arg Gly	
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Ile Leu Glu Ala Ser Leu Glu Leu Phe Lys Phe Thr Ile Gly Met Gly	
595 600 605	
gag ctg gcc ttc cag gag cag ctg cac ttc cgc ggc atg gtg ctg ctg	1872

Glu	Leu	Ala	Phe	Gln	Glu	Gln	Leu	His	Phe	Arg	Gly	Met	Val	Leu	Leu		
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ctg	ctg	ctg	gcc	tac	gtg	ctg	ctc	acc	tac	atc	ctg	ctg	ctc	aac	atg	1920	
Leu	Leu	Leu	Ala	Tyr	Val	Leu	Leu	Thr	Tyr	Ile	Leu	Leu	Leu	Asn	Met		
625					630					635					640		
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Leu	Ile	Ala	Leu	Met	Ser	Glu	Thr	Val	Asn	Ser	Val	Ala	Thr	Asp	Ser		
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Trp	Ser	Ile	Trp	Lys	Leu	Gln	Lys	Ala	Ile	Ser	Val	Leu	Glu	Met	Glu		
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Asn	Gly	Tyr	Trp	Trp	Cys	Arg	Lys	Lys	Gln	Arg	Ala	Gly	Val	Met	Leu		
		675					680					685					
acc	gtt	ggc	act	aag	cca	gat	ggc	agc	ccg	gat	gag	cgc	tgg	tgc	ttc	2112	
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agg	gtg	gag	gag	gtg	aac	tgg	gct	tca	tgg	gag	cag	acg	ctg	cct	acg	2160	
Arg	Val	Glu	Glu	Val	Asn	Trp	Ala	Ser	Trp	Glu	Gln	Thr	Leu	Pro	Thr		
705					710					715					720		
ctg	tgt	gag	gac	ccg	tca	ggg	gca	ggg	gtc	cct	cga	act	ctc	gag	aac	2208	
Leu	Cys	Glu	Asp	Pro	Ser	Gly	Ala	Gly	Val	Pro	Arg	Thr	Leu	Glu	Asn		
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cct	gtc	ctg	gct	tcc	cct	ccc	aag	gag	gat	gag	gat	ggg	gcc	tct	gag	2256	
Pro	Val	Leu	Ala	Ser	Pro	Pro	Lys	Glu	Asp	Glu	Asp	Gly	Ala	Ser	Glu		
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gaa	aac	tat	gtg	ccc	gtc	cag	ctc	ctc	cag	tcc	aac					2292	
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gag	cta	ccc	ctc	tct	ttg	gcc	gct	tgc	acc	aag	cag	tgg	gat	gtg	gta	95	
Glu	Leu	Pro	Leu	Ser	Leu	Ala	Ala	Cys	Thr	Lys	Gln	Trp	Asp	Val	Val		
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agc	tac	ctc	ctg	gag	aac	cca	cac	cag	ccc	gcc	agc	ctg	cag	gcc	act	143	
Ser	Tyr	Leu	Leu	Glu	Asn	Pro	His	Gln	Pro	Ala	Ser	Leu	Gln	Ala	Thr		

35										40					45					
gac	tcc	cag	ggc	aac	aca	gtc	ctg	cat	gcc	cta	gtg	atg	atc	tcg	gac	191				
Asp	Ser	Gln	Gly	Asn	Thr	Val	Leu	His	Ala	Leu	Val	Met	Ile	Ser	Asp					
		50					55					60								
aac	tca	gct	gag	aac	att	gca	ctg	gtg	acc	agc	atg	tat	gat	ggg	ctc	239				
Asn	Ser	Ala	Glu	Asn	Ile	Ala	Leu	Val	Thr	Ser	Met	Tyr	Asp	Gly	Leu					
	65					70					75									
ctc	caa	gct	ggg	gcc	cgc	ctc	tgc	cct	acc	gtg	cag	ctt	gag	gac	atc	287				
Leu	Gln	Ala	Gly	Ala	Arg	Leu	Cys	Pro	Thr	Val	Gln	Leu	Glu	Asp	Ile					
80					85					90					95					
cgc	aac	ctg	cag	gat	ctc	acg	cct	ctg	aag	ctg	gcc	gcc	aag	gag	ggc	335				
Arg	Asn	Leu	Gln	Asp	Leu	Thr	Pro	Leu	Lys	Leu	Ala	Ala	Lys	Glu	Gly					
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Lys	Ile	Glu	Ile	Phe	Arg	His	Ile	Leu	Gln	Arg	Glu	Phe	Ser	Gly	Leu					
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agc	cac	ctt	tcc	cga	aag	ttc	acc	gag	tgg	tgc	tat	ggg	cct	gtc	cgg	431				
Ser	His	Leu	Ser	Arg	Lys	Phe	Thr	Glu	Trp	Cys	Tyr	Gly	Pro	Val	Arg					
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Val	Ser	Leu	Tyr	Asp	Leu	Ala	Ser	Val	Asp	Ser	Cys	Glu	Glu	Asn	Ser					
	145					150					155									
gtg	ctg	gag	atc	att	gcc	ttt	cat	tgc	aag	agc	ccg	cac	cga	cac	cga	527				
Val	Leu	Glu	Ile	Ile	Ala	Phe	His	Cys	Lys	Ser	Pro	His	Arg	His	Arg					
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Met	Val	Val	Leu	Glu	Pro	Leu	Asn	Lys	Leu	Leu	Gln	Ala	Lys	Trp	Asp					
				180					185					190						
ctg	ctc	atc	ccc	aag	ttc	ttc	tta	aac	ttc	ctg	tgt	aat	ctg	atc	tac	623				
Leu	Leu	Ile	Pro	Lys	Phe	Phe	Leu	Asn	Phe	Leu	Cys	Asn	Leu	Ile	Tyr					
			195					200					205							
atg	ttc	atc	ttc	acc	gct	gtt	gcc	tac	cat	cag	cct	acc	ctg	aag	aag	671				
Met	Phe	Ile	Phe	Thr	Ala	Val	Ala	Tyr	His	Gln	Pro	Thr	Leu	Lys	Lys					
		210					215					220								
cag	gcc	gcc	cct	cac	ctg	aaa	gcg	gag	gtt	gga	aac	tcc	atg	ctg	ctg	719				
Gln	Ala	Ala	Pro	His	Leu	Lys	Ala	Glu	Val	Gly	Asn	Ser	Met	Leu	Leu					
	225					230					235									
acg	ggc	cac	atc	ctt	atc	ctg	cta	ggg	ggg	atc	tac	ctc	ctc	gtg	ggc	767				
Thr	Gly	His	Ile	Leu	Ile	Leu	Leu	Gly	Gly	Ile	Tyr	Leu	Leu	Val	Gly					
240					245					250					255					
cag	ctg	tgg	tac	ttc	tgg	cgg	cgc	cac	gtg	ttc	atc	tgg	atc	tcg	ttc	815				
Gln	Leu	Trp	Tyr	Phe	Trp	Arg	Arg	His	Val	Phe	Ile	Trp	Ile	Ser	Phe					
				260					265					270						
ata	gac	agc	tac	ttt	gaa	atc	ctc	ttc	ctg	ttc	cag	gcc	ctg	ctc	aca	863				
Ile	Asp	Ser	Tyr	Phe	Glu	Ile	Leu	Phe	Leu	Phe	Gln	Ala	Leu	Leu	Thr					
			275					280					285							

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gtg gtg tcc cag gtg ctg tgt ttc ctg gcc atc gag tgg tac ctg ccc 911
Val Val Ser Gln Val Leu Cys Phe Leu Ala Ile Glu Trp Tyr Leu Pro
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ctg ctt gtg tct gcg ctg gtg ctg ggc tgg ctg aac ctg ctt tac tat 959
Leu Leu Val Ser Ala Leu Val Leu Gly Trp Leu Asn Leu Leu Tyr Tyr
      305                      310                      315

aca cgt ggc ttc cag cac aca ggc atc tac agt gtc atg atc cag aag 1007
Thr Arg Gly Phe Gln His Thr Gly Ile Tyr Ser Val Met Ile Gln Lys
320                      325                      330                      335

aaa gcc atc tct gtc ctg gag atg gag aat ggc tat tgg tgg tgc agg 1055
Lys Ala Ile Ser Val Leu Glu Met Glu Asn Gly Tyr Trp Trp Cys Arg
      340                      345                      350

aag aag cag cgg gca ggt gtg atg ctg acc gtt ggc act aag cca gat 1103
Lys Lys Gln Arg Ala Gly Val Met Leu Thr Val Gly Thr Lys Pro Asp
      355                      360                      365

ggc agc ccg gat gag cgc tgg tgc ttc agg gtg gag gag gtg aac tgg 1151
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      370                      375                      380

gct tca tgg gag cag acg ctg cct acg ctg tgt gag gac ccg tca ggg 1199
Ala Ser Trp Glu Gln Thr Leu Pro Thr Leu Cys Glu Asp Pro Ser Gly
      385                      390                      395

gca ggt gtc cct cga act ctc gag aac cct gtc ctg gct tcc cct ccc 1247
Ala Gly Val Pro Arg Thr Leu Glu Asn Pro Val Leu Ala Ser Pro Pro
400                      405                      410                      415

aag gag gat gag gat ggt gcc tct gag gaa aac tat gtg ccc gtc cag 1295
Lys Glu Asp Glu Asp Gly Ala Ser Glu Glu Asn Tyr Val Pro Val Gln
      420                      425                      430

ctc ctc cag tcc aac tgatggccca gatgcagcag gaggccagag gacagagcag 1350
Leu Leu Gln Ser Asn
      435

aggatctttc caaccacatc tgctggctct ggggtcccag tgaattctgg tggcaaatat 1410

atattttcac taactcaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaagg 1470

agcggacgcg tgggtcgac 1489

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<210> 8

<211> 436

<212> PRT

<213> Homo sapiens

<400> 8

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Gly Arg Phe Phe Gln Lys Gly Gln Gly Thr Cys Phe Tyr Phe Gly Glu
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Leu Pro Leu Ser Leu Ala Ala Cys Thr Lys Gln Trp Asp Val Val Ser
      20                      25                      30

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Tyr Leu Leu Glu Asn Pro His Gln Pro Ala Ser Leu Gln Ala Thr Asp

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35					40					45					
Ser	Gln	Gly	Asn	Thr	Val	Leu	His	Ala	Leu	Val	Met	Ile	Ser	Asp	Asn
50						55					60				
Ser	Ala	Glu	Asn	Ile	Ala	Leu	Val	Thr	Ser	Met	Tyr	Asp	Gly	Leu	Leu
65					70					75					80
Gln	Ala	Gly	Ala	Arg	Leu	Cys	Pro	Thr	Val	Gln	Leu	Glu	Asp	Ile	Arg
				85					90					95	
Asn	Leu	Gln	Asp	Leu	Thr	Pro	Leu	Lys	Leu	Ala	Ala	Lys	Glu	Gly	Lys
			100					105					110		
Ile	Glu	Ile	Phe	Arg	His	Ile	Leu	Gln	Arg	Glu	Phe	Ser	Gly	Leu	Ser
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His	Leu	Ser	Arg	Lys	Phe	Thr	Glu	Trp	Cys	Tyr	Gly	Pro	Val	Arg	Val
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Leu	Glu	Ile	Ile	Ala	Phe	His	Cys	Lys	Ser	Pro	His	Arg	His	Arg	Met
				165					170					175	
Val	Val	Leu	Glu	Pro	Leu	Asn	Lys	Leu	Leu	Gln	Ala	Lys	Trp	Asp	Leu
			180					185					190		
Leu	Ile	Pro	Lys	Phe	Phe	Leu	Asn	Phe	Leu	Cys	Asn	Leu	Ile	Tyr	Met
		195					200					205			
Phe	Ile	Phe	Thr	Ala	Val	Ala	Tyr	His	Gln	Pro	Thr	Leu	Lys	Lys	Gln
210						215					220				
Ala	Ala	Pro	His	Leu	Lys	Ala	Glu	Val	Gly	Asn	Ser	Met	Leu	Leu	Thr
225					230					235					240
Gly	His	Ile	Leu	Ile	Leu	Leu	Gly	Gly	Ile	Tyr	Leu	Leu	Val	Gly	Gln
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Leu	Trp	Tyr	Phe	Trp	Arg	Arg	His	Val	Phe	Ile	Trp	Ile	Ser	Phe	Ile
			260					265					270		
Asp	Ser	Tyr	Phe	Glu	Ile	Leu	Phe	Leu	Phe	Gln	Ala	Leu	Leu	Thr	Val
		275					280					285			
Val	Ser	Gln	Val	Leu	Cys	Phe	Leu	Ala	Ile	Glu	Trp	Tyr	Leu	Pro	Leu
		290				295					300				
Leu	Val	Ser	Ala	Leu	Val	Leu	Gly	Trp	Leu	Asn	Leu	Leu	Tyr	Tyr	Thr
305					310					315					320
Arg	Gly	Phe	Gln	His	Thr	Gly	Ile	Tyr	Ser	Val	Met	Ile	Gln	Lys	Lys
				325					330					335	
Ala	Ile	Ser	Val	Leu	Glu	Met	Glu	Asn	Gly	Tyr	Trp	Trp	Cys	Arg	Lys
			340					345					350		
Lys	Gln	Arg	Ala	Gly	Val	Met	Leu	Thr	Val	Gly	Thr	Lys	Pro	Asp	Gly
		355					360					365			

Ser Pro Asp Glu Arg Trp Cys Phe Arg Val Glu Glu Val Asn Trp Ala
 370 375 380

Ser Trp Glu Gln Thr Leu Pro Thr Leu Cys Glu Asp Pro Ser Gly Ala
 385 390 395 400

Gly Val Pro Arg Thr Leu Glu Asn Pro Val Leu Ala Ser Pro Pro Lys
 405 410 415

Glu Asp Glu Asp Gly Ala Ser Glu Glu Asn Tyr Val Pro Val Gln Leu
 420 425 430

Leu Gln Ser Asn
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<210> 9

<211> 1308

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)..(1308)

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cta ccc ctc tct ttg gcc gct tgc acc aag cag tgg gat gtg gta agc 96
 Leu Pro Leu Ser Leu Ala Ala Cys Thr Lys Gln Trp Asp Val Val Ser
 20 25 30

tac ctc ctg gag aac cca cac cag ccc gcc agc ctg cag gcc act gac 144
 Tyr Leu Leu Glu Asn Pro His Gln Pro Ala Ser Leu Gln Ala Thr Asp
 35 40 45

tcc cag ggc aac aca gtc ctg cat gcc cta gtg atg atc tcg gac aac 192
 Ser Gln Gly Asn Thr Val Leu His Ala Leu Val Met Ile Ser Asp Asn
 50 55 60

tca gct gag aac att gca ctg gtg acc agc atg tat gat ggg ctc ctc 240
 Ser Ala Glu Asn Ile Ala Leu Val Thr Ser Met Tyr Asp Gly Leu Leu
 65 70 75 80

caa gct ggg gcc cgc ctc tgc cct acc gtg cag ctt gag gac atc cgc 288
 Gln Ala Gly Ala Arg Leu Cys Pro Thr Val Gln Leu Glu Asp Ile Arg
 85 90 95

aac ctg cag gat ctc acg cct ctg aag ctg gcc gcc aag gag ggc aag 336
 Asn Leu Gln Asp Leu Thr Pro Leu Lys Leu Ala Ala Lys Glu Gly Lys
 100 105 110

atc gag att ttc agg cac atc ctg cag cgg gag ttt tca gga ctg agc 384
 Ile Glu Ile Phe Arg His Ile Leu Gln Arg Glu Phe Ser Gly Leu Ser
 115 120 125

cac ctt tcc cga aag ttc acc gag tgg tgc tat ggg cct gtc cgg gtg 432
 His Leu Ser Arg Lys Phe Thr Glu Trp Cys Tyr Gly Pro Val Arg Val

130	135	140	
tcg ctg tat gac ctg gct tct gtg gac agc tgt gag gag aac tca gtg			480
Ser Leu Tyr Asp Leu Ala Ser Val Asp Ser Cys Glu Glu Asn Ser Val			
145	150	155	160
ctg gag atc att gcc ttt cat tgc aag agc ccg cac cga cac cga atg			528
Leu Glu Ile Ile Ala Phe His Cys Lys Ser Pro His Arg His Arg Met			
	165	170	175
gtc gtt ttg gag ccc ctg aac aaa ctg ctg cag gcg aaa tgg gat ctg			576
Val Val Leu Glu Pro Leu Asn Lys Leu Leu Gln Ala Lys Trp Asp Leu			
	180	185	190
ctc atc ccc aag ttc ttc tta aac ttc ctg tgt aat ctg atc tac atg			624
Leu Ile Pro Lys Phe Phe Leu Asn Phe Leu Cys Asn Leu Ile Tyr Met			
	195	200	205
ttc atc ttc acc gct gtt gcc tac cat cag cct acc ctg aag aag cag			672
Phe Ile Phe Thr Ala Val Ala Tyr His Gln Pro Thr Leu Lys Lys Gln			
	210	215	220
gcc gcc cct cac ctg aaa gcg gag gtt gga aac tcc atg ctg ctg acg			720
Ala Ala Pro His Leu Lys Ala Glu Val Gly Asn Ser Met Leu Leu Thr			
	225	230	240
ggc cac atc ctt atc ctg cta ggg ggg atc tac ctc ctc gtg ggc cag			768
Gly His Ile Leu Ile Leu Leu Gly Gly Ile Tyr Leu Leu Val Gly Gln			
	245	250	255
ctg tgg tac ttc tgg cgg cgc cac gtg ttc atc tgg atc tcg ttc ata			816
Leu Trp Tyr Phe Trp Arg Arg His Val Phe Ile Trp Ile Ser Phe Ile			
	260	265	270
gac agc tac ttt gaa atc ctc ttc ctg ttc cag gcc ctg ctc aca gtg			864
Asp Ser Tyr Phe Glu Ile Leu Phe Leu Phe Gln Ala Leu Leu Thr Val			
	275	280	285
gtg tcc cag gtg ctg tgt ttc ctg gcc atc gag tgg tac ctg ccc ctg			912
Val Ser Gln Val Leu Cys Phe Leu Ala Ile Glu Trp Tyr Leu Pro Leu			
	290	295	300
ctt gtg tct gcg ctg gtg ctg ggc tgg ctg aac ctg ctt tac tat aca			960
Leu Val Ser Ala Leu Val Leu Gly Trp Leu Asn Leu Leu Tyr Tyr Thr			
	305	310	320
cgt ggc ttc cag cac aca ggc atc tac agt gtc atg atc cag aag aaa			1008
Arg Gly Phe Gln His Thr Gly Ile Tyr Ser Val Met Ile Gln Lys Lys			
	325	330	335
gcc atc tct gtc ctg gag atg gag aat ggc tat tgg tgg tgc agg aag			1056
Ala Ile Ser Val Leu Glu Met Glu Asn Gly Tyr Trp Trp Cys Arg Lys			
	340	345	350
aag cag cgg gca ggt gtg atg ctg acc gtt ggc act aag cca gat ggc			1104
Lys Gln Arg Ala Gly Val Met Leu Thr Val Gly Thr Lys Pro Asp Gly			
	355	360	365
agc ccg gat gag cgc tgg tgc ttc agg gtg gag gag gtg aac tgg gct			1152
Ser Pro Asp Glu Arg Trp Cys Phe Arg Val Glu Glu Val Asn Trp Ala			
	370	375	380

tca tgg gag cag acg ctg cct acg ctg tgt gag gac ccg tca ggg gca 1200
 Ser Trp Glu Gln Thr Leu Pro Thr Leu Cys Glu Asp Pro Ser Gly Ala
 385 390 395 400

ggt gtc cct cga act ctc gag aac cct gtc ctg gct tcc cct ccc aag 1248
 Gly Val Pro Arg Thr Leu Glu Asn Pro Val Leu Ala Ser Pro Pro Lys
 405 410 415

gag gat gag gat ggt gcc tct gag gaa aac tat gtg ccc gtc cag ctc 1296
 Glu Asp Glu Asp Gly Ala Ser Glu Glu Asn Tyr Val Pro Val Gln Leu
 420 425 430

ctc cag tcc aac 1308
 Leu Gln Ser Asn
 435

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 <212> DNA
 <213> Rattus sp.

<220>
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 <222> (2)..(1663)

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 Ser Thr His Ala Ser Ala Leu Ser Leu Ala Ala Cys Thr Lys Gln Trp
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gat gtg gtg acc tac ctc ctg gag aac cca cac cag ccg gcc agc ctg 97
 Asp Val Val Thr Tyr Leu Leu Glu Asn Pro His Gln Pro Ala Ser Leu
 20 25 30

gag gcc acc gac tcc ctg ggc aac aca gtc ctg cat gct ctg gta atg 145
 Glu Ala Thr Asp Ser Leu Gly Asn Thr Val Leu His Ala Leu Val Met
 35 40 45

att gca gat aac tcg cct gag aac agt gcc ctg gtg atc cac atg tac 193
 Ile Ala Asp Asn Ser Pro Glu Asn Ser Ala Leu Val Ile His Met Tyr
 50 55 60

gac ggg ctt cta caa atg ggg gcg cgc ctc tgc ccc act gtg cag ctt 241
 Asp Gly Leu Leu Gln Met Gly Ala Arg Leu Cys Pro Thr Val Gln Leu
 65 70 75 80

gag gaa atc tcc aac cac caa ggc ctc aca ccc ctg aaa cta gcc gcc 289
 Glu Glu Ile Ser Asn His Gln Gly Leu Thr Pro Leu Lys Leu Ala Ala
 85 90 95

aag gaa ggc aaa atc gag att ttc agg cac att ctg cag cgg gaa ttc 337
 Lys Glu Gly Lys Ile Glu Ile Phe Arg His Ile Leu Gln Arg Glu Phe
 100 105 110

tca gga ccg tac cag ccc ctt tcc cga aag ttt act gag tgg tgt tac 385
 Ser Gly Pro Tyr Gln Pro Leu Ser Arg Lys Phe Thr Glu Trp Cys Tyr
 115 120 125

ggt cct gtg cgg gta tcg ctg tac gac ctg tcc tct gtg gac agc tgg 433

Gly	Pro	Val	Arg	Val	Ser	Leu	Tyr	Asp	Leu	Ser	Ser	Val	Asp	Ser	Trp	
130						135					140					
gaa	aag	aac	tcg	gtg	ctg	gag	atc	atc	gct	ttt	cat	tgc	aag	agc	ccg	481
Glu	Lys	Asn	Ser	Val	Leu	Glu	Ile	Ile	Ala	Phe	His	Cys	Lys	Ser	Pro	
145					150				155						160	
aac	cgg	cac	cgc	atg	gtg	gtt	tta	gaa	cca	ctg	aac	aag	ctt	ctg	cag	529
Asn	Arg	His	Arg	Met	Val	Val	Leu	Glu	Pro	Leu	Asn	Lys	Leu	Leu	Gln	
				165					170						175	
gag	aaa	tgg	gat	cgg	ctc	gtc	tca	aga	ttc	ttc	ttc	aac	ttc	gcc	tgc	577
Glu	Lys	Trp	Asp	Arg	Leu	Val	Ser	Arg	Phe	Phe	Phe	Asn	Phe	Ala	Cys	
			180					185					190			
tac	ttg	gtc	tac	atg	ttc	atc	ttc	acc	gtc	gtt	gcc	tac	cac	cag	cct	625
Tyr	Leu	Val	Tyr	Met	Phe	Ile	Phe	Thr	Val	Val	Ala	Tyr	His	Gln	Pro	
		195					200					205				
tcc	ctg	gat	cag	cca	gcc	atc	ccc	tca	tca	aaa	gcg	act	ttt	ggg	gaa	673
Ser	Leu	Asp	Gln	Pro	Ala	Ile	Pro	Ser	Ser	Lys	Ala	Thr	Phe	Gly	Glu	
	210					215					220					
tcc	atg	ctg	ctg	ctg	ggc	cac	att	ctg	atc	ctg	ctt	ggg	ggt	att	tac	721
Ser	Met	Leu	Leu	Leu	Gly	His	Ile	Leu	Ile	Leu	Leu	Gly	Gly	Ile	Tyr	
225					230					235					240	
ctc	tta	ctg	ggc	cag	ctg	tgg	tac	ttt	tgg	cgg	cgg	cgc	ctg	ttt	atc	769
Leu	Leu	Leu	Gly	Gln	Leu	Trp	Tyr	Phe	Trp	Arg	Arg	Arg	Leu	Phe	Ile	
				245					250					255		
tgg	atc	tca	ttc	atg	gac	agc	tac	ttt	gaa	atc	ctc	ttt	ctc	ctt	cag	817
Trp	Ile	Ser	Phe	Met	Asp	Ser	Tyr	Phe	Glu	Ile	Leu	Phe	Leu	Leu	Gln	
			260					265					270			
gct	ctg	ctc	aca	gtg	ctg	tcc	cag	gtg	ctg	cgc	ttc	atg	gag	act	gaa	865
Ala	Leu	Leu	Thr	Val	Leu	Ser	Gln	Val	Leu	Arg	Phe	Met	Glu	Thr	Glu	
		275					280					285				
tgg	tac	cta	ccc	ctg	cta	gtg	tta	tcc	cta	gtg	ctg	ggc	tgg	ctg	aac	913
Trp	Tyr	Leu	Pro	Leu	Leu	Val	Leu	Ser	Leu	Val	Leu	Gly	Trp	Leu	Asn	
	290					295					300					
ctg	ctt	tac	tac	aca	cgg	ggc	ttt	cag	cac	aca	ggc	atc	tac	agt	gtc	961
Leu	Leu	Tyr	Tyr	Thr	Arg	Gly	Phe	Gln	His	Thr	Gly	Ile	Tyr	Ser	Val	
305					310					315					320	
atg	atc	cag	aag	gtc	atc	ctt	cga	gac	ctg	ctc	cgt	ttc	ctg	ctg	gtc	1009
Met	Ile	Gln	Lys	Val	Ile	Leu	Arg	Asp	Leu	Leu	Arg	Phe	Leu	Leu	Val	
				325					330					335		
tac	ctg	gtc	ttc	ctt	ttc	ggc	ttt	gct	gta	gcc	cta	gta	agc	ttg	agc	1057
Tyr	Leu	Val	Phe	Leu	Phe	Gly	Phe	Ala	Val	Ala	Leu	Val	Ser	Leu	Ser	
			340					345					350			
aga	gag	gcc	cga	agt	ccc	aaa	gcc	cct	gaa	gat	aac	aac	tcc	aca	gtg	1105
Arg	Glu	Ala	Arg	Ser	Pro	Lys	Ala	Pro	Glu	Asp	Asn	Asn	Ser	Thr	Val	
		355					360					365				
acg	gaa	cag	ccc	acg	gtg	ggc	cag	gag	gag	gag	cca	gct	cca	tat	cgg	1153
Thr	Glu	Gln	Pro	Thr	Val	Gly	Gln	Glu	Glu	Glu	Pro	Ala	Pro	Tyr	Arg	

370	375	380	
agc att ctg gat gcc tcc cta gag ctg ttc aag ttc acc att ggt atg			1201
Ser Ile Leu Asp Ala Ser Leu Glu Leu Phe Lys Phe Thr Ile Gly Met			
385	390	395	400
ggg gag ctg gct ttc cag gaa cag ctg cgt ttt cgt ggg gtg gtc ctg			1249
Gly Glu Leu Ala Phe Gln Glu Gln Leu Arg Phe Arg Gly Val Val Leu			
	405	410	415
ctg ttg ctg ttg gcc tac gtc ctt ctc acc tac gtc ctg ctg ctc aac			1297
Leu Leu Leu Leu Ala Tyr Val Leu Leu Thr Tyr Val Leu Leu Leu Asn			
	420	425	430
atg ctc att gct ctc atg agc gaa act gtc aac cac gtt gct gac aac			1345
Met Leu Ile Ala Leu Met Ser Glu Thr Val Asn His Val Ala Asp Asn			
	435	440	445
agc tgg agc atc tgg aag ttg cag aaa gcc atc tct gtc ttg gag atg			1393
Ser Trp Ser Ile Trp Lys Leu Gln Lys Ala Ile Ser Val Leu Glu Met			
	450	455	460
gag aat ggt tac tgg tgg tgc cgg agg aag aaa cat cgt gaa ggg agg			1441
Glu Asn Gly Tyr Trp Trp Cys Arg Arg Lys Lys His Arg Glu Gly Arg			
	465	470	480
ctg ctg aaa gtc ggc acc agg ggg gat ggt acc cct gat gag cgc tgg			1489
Leu Leu Lys Val Gly Thr Arg Gly Asp Gly Thr Pro Asp Glu Arg Trp			
	485	490	495
tgc ttc agg gtg gag gaa gta aat tgg gct gct tgg gag aag act ctt			1537
Cys Phe Arg Val Glu Glu Val Asn Trp Ala Ala Trp Glu Lys Thr Leu			
	500	505	510
ccc acc tta tct gag gat cca tca ggg cca ggc atc act ggt aat aaa			1585
Pro Thr Leu Ser Glu Asp Pro Ser Gly Pro Gly Ile Thr Gly Asn Lys			
	515	520	525
aag aac cca acc tct aaa ccg ggg aag aac agt gcc tca gag gaa gac			1633
Lys Asn Pro Thr Ser Lys Pro Gly Lys Asn Ser Ala Ser Glu Glu Asp			
	530	535	540
cat ctg ccc ctt cag gtc ctc cag tcc ccc tgatggccca gatgcagcag			1683
His Leu Pro Leu Gln Val Leu Gln Ser Pro			
	545	550	
caggctggca ggatggagta ggggaatcttc ccagccacac cagaggctac tgaatttttg			1743
tggaaatata aatatttttt ttgcataaaa aaaaaaaaaa agggcggccg c			1794

<210> 11
 <211> 554
 <212> PRT
 <213> Rattus sp.

<400> 11
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 Asp Val Val Thr Tyr Leu Leu Glu Asn Pro His Gln Pro Ala Ser Leu

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Glu	Ala	Thr	Asp	Ser	Leu	Gly	Asn	Thr	Val	Leu	His	Ala	Leu	Val	Met
	35						40					45			
Ile	Ala	Asp	Asn	Ser	Pro	Glu	Asn	Ser	Ala	Leu	Val	Ile	His	Met	Tyr
	50					55					60				
Asp	Gly	Leu	Leu	Gln	Met	Gly	Ala	Arg	Leu	Cys	Pro	Thr	Val	Gln	Leu
	65				70					75					80
Glu	Glu	Ile	Ser	Asn	His	Gln	Gly	Leu	Thr	Pro	Leu	Lys	Leu	Ala	Ala
				85					90					95	
Lys	Glu	Gly	Lys	Ile	Glu	Ile	Phe	Arg	His	Ile	Leu	Gln	Arg	Glu	Phe
			100					105					110		
Ser	Gly	Pro	Tyr	Gln	Pro	Leu	Ser	Arg	Lys	Phe	Thr	Glu	Trp	Cys	Tyr
		115					120					125			
Gly	Pro	Val	Arg	Val	Ser	Leu	Tyr	Asp	Leu	Ser	Ser	Val	Asp	Ser	Trp
	130					135					140				
Glu	Lys	Asn	Ser	Val	Leu	Glu	Ile	Ile	Ala	Phe	His	Cys	Lys	Ser	Pro
	145				150					155					160
Asn	Arg	His	Arg	Met	Val	Val	Leu	Glu	Pro	Leu	Asn	Lys	Leu	Leu	Gln
				165					170						175
Glu	Lys	Trp	Asp	Arg	Leu	Val	Ser	Arg	Phe	Phe	Phe	Asn	Phe	Ala	Cys
			180					185					190		
Tyr	Leu	Val	Tyr	Met	Phe	Ile	Phe	Thr	Val	Val	Ala	Tyr	His	Gln	Pro
		195					200					205			
Ser	Leu	Asp	Gln	Pro	Ala	Ile	Pro	Ser	Ser	Lys	Ala	Thr	Phe	Gly	Glu
	210					215					220				
Ser	Met	Leu	Leu	Leu	Gly	His	Ile	Leu	Ile	Leu	Leu	Gly	Gly	Ile	Tyr
	225				230					235					240
Leu	Leu	Leu	Gly	Gln	Leu	Trp	Tyr	Phe	Trp	Arg	Arg	Arg	Leu	Phe	Ile
			245						250					255	
Trp	Ile	Ser	Phe	Met	Asp	Ser	Tyr	Phe	Glu	Ile	Leu	Phe	Leu	Leu	Gln
			260					265					270		
Ala	Leu	Leu	Thr	Val	Leu	Ser	Gln	Val	Leu	Arg	Phe	Met	Glu	Thr	Glu
	275						280					285			
Trp	Tyr	Leu	Pro	Leu	Leu	Val	Leu	Ser	Leu	Val	Leu	Gly	Trp	Leu	Asn
	290					295					300				
Leu	Leu	Tyr	Tyr	Thr	Arg	Gly	Phe	Gln	His	Thr	Gly	Ile	Tyr	Ser	Val
	305				310					315					320
Met	Ile	Gln	Lys	Val	Ile	Leu	Arg	Asp	Leu	Leu	Arg	Phe	Leu	Leu	Val
				325					330					335	
Tyr	Leu	Val	Phe	Leu	Phe	Gly	Phe	Ala	Val	Ala	Leu	Val	Ser	Leu	Ser
			340					345					350		

Arg Glu Ala Arg Ser Pro Lys Ala Pro Glu Asp Asn Asn Ser Thr Val
 355 360 365
 Thr Glu Gln Pro Thr Val Gly Gln Glu Glu Glu Pro Ala Pro Tyr Arg
 370 375 380
 Ser Ile Leu Asp Ala Ser Leu Glu Leu Phe Lys Phe Thr Ile Gly Met
 385 390 395 400
 Gly Glu Leu Ala Phe Gln Glu Gln Leu Arg Phe Arg Gly Val Val Leu
 405 410 415
 Leu Leu Leu Leu Ala Tyr Val Leu Leu Thr Tyr Val Leu Leu Leu Asn
 420 425 430
 Met Leu Ile Ala Leu Met Ser Glu Thr Val Asn His Val Ala Asp Asn
 435 440 445
 Ser Trp Ser Ile Trp Lys Leu Gln Lys Ala Ile Ser Val Leu Glu Met
 450 455 460
 Glu Asn Gly Tyr Trp Trp Cys Arg Arg Lys Lys His Arg Glu Gly Arg
 465 470 475 480
 Leu Leu Lys Val Gly Thr Arg Gly Asp Gly Thr Pro Asp Glu Arg Trp
 485 490 495
 Cys Phe Arg Val Glu Glu Val Asn Trp Ala Ala Trp Glu Lys Thr Leu
 500 505 510
 Pro Thr Leu Ser Glu Asp Pro Ser Gly Pro Gly Ile Thr Gly Asn Lys
 515 520 525
 Lys Asn Pro Thr Ser Lys Pro Gly Lys Asn Ser Ala Ser Glu Glu Asp
 530 535 540
 His Leu Pro Leu Gln Val Leu Gln Ser Pro
 545 550

<210> 12
 <211> 1662
 <212> DNA
 <213> Rattus sp.

<220>
 <221> CDS
 <222> (1)..(1662)

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 gat gtg gtg acc tac ctc ctg gag aac cca cac cag ccg gcc agc ctg 96
 Asp Val Val Thr Tyr Leu Leu Glu Asn Pro His Gln Pro Ala Ser Leu
 20 25 30
 gag gcc acc gac tcc ctg ggc aac aca gtc ctg cat gct ctg gta atg 144
 Glu Ala Thr Asp Ser Leu Gly Asn Thr Val Leu His Ala Leu Val Met

35					40					45						
att	gca	gat	aac	tcg	cct	gag	aac	agt	gcc	ctg	gtg	atc	cac	atg	tac	192
Ile	Ala	Asp	Asn	Ser	Pro	Glu	Asn	Ser	Ala	Leu	Val	Ile	His	Met	Tyr	
	50						55				60					
gac	ggg	ctt	cta	caa	atg	ggg	gcg	cgc	ctc	tgc	ccc	act	gtg	cag	ctt	240
Asp	Gly	Leu	Leu	Gln	Met	Gly	Ala	Arg	Leu	Cys	Pro	Thr	Val	Gln	Leu	
	65				70					75					80	
gag	gaa	atc	tcc	aac	cac	caa	ggc	ctc	aca	ccc	ctg	aaa	cta	gcc	gcc	288
Glu	Glu	Ile	Ser	Asn	His	Gln	Gly	Leu	Thr	Pro	Leu	Lys	Leu	Ala	Ala	
				85					90					95		
aag	gaa	ggc	aaa	atc	gag	att	ttc	agg	cac	att	ctg	cag	cgg	gaa	ttc	336
Lys	Glu	Gly	Lys	Ile	Glu	Ile	Phe	Arg	His	Ile	Leu	Gln	Arg	Glu	Phe	
			100					105					110			
tca	gga	ccg	tac	cag	ccc	ctt	tcc	cga	aag	ttt	act	gag	tgg	tgt	tac	384
Ser	Gly	Pro	Tyr	Gln	Pro	Leu	Ser	Arg	Lys	Phe	Thr	Glu	Trp	Cys	Tyr	
			115				120					125				
ggt	cct	gtg	cgg	gta	tcg	ctg	tac	gac	ctg	tcc	tct	gtg	gac	agc	tgg	432
Gly	Pro	Val	Arg	Val	Ser	Leu	Tyr	Asp	Leu	Ser	Ser	Val	Asp	Ser	Trp	
	130					135					140					
gaa	aag	aac	tcg	gtg	ctg	gag	atc	atc	gct	ttt	cat	tgc	aag	agc	ccg	480
Glu	Lys	Asn	Ser	Val	Leu	Glu	Ile	Ile	Ala	Phe	His	Cys	Lys	Ser	Pro	
	145				150				155						160	
aac	cgg	cac	cgc	atg	gtg	gtt	tta	gaa	cca	ctg	aac	aag	ctt	ctg	cag	528
Asn	Arg	His	Arg	Met	Val	Val	Leu	Glu	Pro	Leu	Asn	Lys	Leu	Leu	Gln	
				165					170					175		
gag	aaa	tgg	gat	cgg	ctc	gtc	tca	aga	ttc	ttc	ttc	aac	ttc	gcc	tgc	576
Glu	Lys	Trp	Asp	Arg	Leu	Val	Ser	Arg	Phe	Phe	Phe	Asn	Phe	Ala	Cys	
			180					185					190			
tac	ttg	gtc	tac	atg	ttc	atc	ttc	acc	gtc	gtt	gcc	tac	cac	cag	cct	624
Tyr	Leu	Val	Tyr	Met	Phe	Ile	Phe	Thr	Val	Val	Ala	Tyr	His	Gln	Pro	
		195					200				205					
tcc	ctg	gat	cag	cca	gcc	atc	ccc	tca	tca	aaa	gcg	act	ttt	ggg	gaa	672
Ser	Leu	Asp	Gln	Pro	Ala	Ile	Pro	Ser	Ser	Lys	Ala	Thr	Phe	Gly	Glu	
	210					215					220					
tcc	atg	ctg	ctg	ctg	ggc	cac	att	ctg	atc	ctg	ctt	ggg	ggt	att	tac	720
Ser	Met	Leu	Leu	Leu	Gly	His	Ile	Leu	Ile	Leu	Leu	Gly	Gly	Ile	Tyr	
	225				230					235					240	
ctc	tta	ctg	ggc	cag	ctg	tgg	tac	ttt	tgg	cgg	cgg	cgc	ctg	ttt	atc	768
Leu	Leu	Leu	Gly	Gln	Leu	Trp	Tyr	Phe	Trp	Arg	Arg	Arg	Leu	Phe	Ile	
				245					250					255		
tgg	atc	tca	ttc	atg	gac	agc	tac	ttt	gaa	atc	ctc	ttt	ctc	ctt	cag	816
Trp	Ile	Ser	Phe	Met	Asp	Ser	Tyr	Phe	Glu	Ile	Leu	Phe	Leu	Leu	Gln	
			260				265						270			
gct	ctg	ctc	aca	gtg	ctg	tcc	cag	gtg	ctg	cgc	ttc	atg	gag	act	gaa	864
Ala	Leu	Leu	Thr	Val	Leu	Ser	Gln	Val	Leu	Arg	Phe	Met	Glu	Thr	Glu	
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tgg tac cta ccc ctg cta gtg tta tcc cta gtg ctg ggc tgg ctg aac	912
Trp Tyr Leu Pro Leu Leu Val Leu Ser Leu Val Leu Gly Trp Leu Asn	
290 295 300	
ctg ctt tac tac aca cgg ggc ttt cag cac aca ggc atc tac agt gtc	960
Leu Leu Tyr Tyr Thr Arg Gly Phe Gln His Thr Gly Ile Tyr Ser Val	
305 310 315 320	
atg atc cag aag gtc atc ctt cga gac ctg ctc cgt ttc ctg ctg gtc	1008
Met Ile Gln Lys Val Ile Leu Arg Asp Leu Leu Arg Phe Leu Leu Val	
325 330 335	
tac ctg gtc ttc ctt ttc ggc ttt gct gta gcc cta gta agc ttg agc	1056
Tyr Leu Val Phe Leu Phe Gly Phe Ala Val Ala Leu Val Ser Leu Ser	
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aga gag gcc cga agt ccc aaa gcc cct gaa gat aac aac tcc aca gtg	1104
Arg Glu Ala Arg Ser Pro Lys Ala Pro Glu Asp Asn Asn Ser Thr Val	
355 360 365	
acg gaa cag ccc acg gtg ggc cag gag gag gag cca gct cca tat cgg	1152
Thr Glu Gln Pro Thr Val Gly Gln Glu Glu Glu Pro Ala Pro Tyr Arg	
370 375 380	
agc att ctg gat gcc tcc cta gag ctg ttc aag ttc acc att ggt atg	1200
Ser Ile Leu Asp Ala Ser Leu Glu Leu Phe Lys Phe Thr Ile Gly Met	
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Gly Glu Leu Ala Phe Gln Glu Gln Leu Arg Phe Arg Gly Val Val Leu	
405 410 415	
ctg ttg ctg ttg gcc tac gtc ctt ctc acc tac gtc ctg ctg ctc aac	1296
Leu Leu Leu Leu Ala Tyr Val Leu Leu Thr Tyr Val Leu Leu Leu Asn	
420 425 430	
atg ctc att gct ctc atg agc gaa act gtc aac cac gtt gct gac aac	1344
Met Leu Ile Ala Leu Met Ser Glu Thr Val Asn His Val Ala Asp Asn	
435 440 445	
agc tgg agc atc tgg aag ttg cag aaa gcc atc tct gtc ttg gag atg	1392
Ser Trp Ser Ile Trp Lys Leu Gln Lys Ala Ile Ser Val Leu Glu Met	
450 455 460	
gag aat ggt tac tgg tgg tgc cgg agg aag aaa cat cgt gaa ggg agg	1440
Glu Asn Gly Tyr Trp Trp Cys Arg Arg Lys Lys His Arg Glu Gly Arg	
465 470 475 480	
ctg ctg aaa gtc ggc acc agg ggg gat ggt acc cct gat gag cgc tgg	1488
Leu Leu Lys Val Gly Thr Arg Gly Asp Gly Thr Pro Asp Glu Arg Trp	
485 490 495	
tgc ttc agg gtg gag gaa gta aat tgg gct gct tgg gag aag act ctt	1536
Cys Phe Arg Val Glu Glu Val Asn Trp Ala Ala Trp Glu Lys Thr Leu	
500 505 510	
ccc acc tta tct gag gat cca tca ggg cca ggc atc act ggt aat aaa	1584
Pro Thr Leu Ser Glu Asp Pro Ser Gly Pro Gly Ile Thr Gly Asn Lys	
515 520 525	

aag aac cca acc tct aaa ccg ggg aag aac agt gcc tca gag gaa gac 1632
 Lys Asn Pro Thr Ser Lys Pro Gly Lys Asn Ser Ala Ser Glu Glu Asp
 530 535 540

cat ctg ccc ctt cag gtc ctc cag tcc ccc 1662
 His Leu Pro Leu Gln Val Leu Gln Ser Pro
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<220>
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 1 5 10 15

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 <211> 25
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Met Glu Gly Gln Glu Asp Glu Gly Asn
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Arg Ala Gly

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<223> Description of Artificial Sequence: primer

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20

<210> 17

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<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence:primer

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22

<210> 18

<211> 21

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence:primer

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21

<210> 19

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<212> DNA

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<223> Description of Artificial Sequence:primer

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<210> 20

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<212> PRT

<213> Homo sapiens

<400> 20

Met Thr Ser Pro Ser Ser Ser Pro Val Phe Arg Leu Glu Thr Leu Asp
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Gly Gly Gln Glu Asp Gly Ser Glu Ala Asp Arg Gly Lys Leu Asp Phe
20 25 30

Gly Ser Gly Leu Pro Pro Met Glu Ser Gln Phe Gln Gly Glu Asp Arg
35 40 45

Lys Phe Ala Pro Gln Ile Arg Val Asn Leu Asn Tyr Arg Lys Gly Thr

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Gly	Ala	Ser	Gln	Pro	Asp	Pro	Asn	Arg	Phe	Asp	Arg	Asp	Arg	Leu	Phe
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Asn	Ala	Val	Ser	Arg	Gly	Val	Pro	Glu	Asp	Leu	Ala	Gly	Leu	Pro	Glu
				85					90					95	
Tyr	Leu	Ser	Lys	Thr	Ser	Lys	Tyr	Leu	Thr	Asp	Ser	Glu	Tyr	Thr	Glu
			100					105					110		
Gly	Ser	Thr	Gly	Lys	Thr	Cys	Leu	Met	Lys	Ala	Val	Leu	Asn	Leu	Lys
		115					120					125			
Asp	Gly	Val	Asn	Ala	Cys	Ile	Leu	Pro	Leu	Leu	Gln	Ile	Asp	Arg	Asp
	130					135					140				
Ser	Gly	Asn	Pro	Gln	Pro	Leu	Val	Asn	Ala	Gln	Cys	Thr	Asp	Asp	Tyr
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Tyr	Arg	Gly	His	Ser	Ala	Leu	His	Ile	Ala	Ile	Glu	Lys	Arg	Ser	Leu
				165					170					175	
Gln	Cys	Val	Lys	Leu	Leu	Val	Glu	Asn	Gly	Ala	Asn	Val	His	Ala	Arg
			180					185					190		
Ala	Cys	Gly	Arg	Phe	Phe	Gln	Lys	Gly	Gln	Gly	Thr	Cys	Phe	Tyr	Phe
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Gly	Glu	Leu	Pro	Leu	Ser	Leu	Ala	Ala	Cys	Thr	Lys	Gln	Trp	Asp	Val
	210					215					220				
Val	Ser	Tyr	Leu	Leu	Glu	Asn	Pro	His	Gln	Pro	Ala	Ser	Leu	Gln	Ala
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Thr	Asp	Ser	Gln	Gly	Asn	Thr	Val	Leu	His	Ala	Leu	Val	Met	Ile	Ser
				245					250					255	
Asp	Asn	Ser	Ala	Glu	Asn	Ile	Ala	Leu	Val	Thr	Ser	Met	Tyr	Asp	Gly
			260					265					270		
Leu	Leu	Gln	Ala	Gly	Ala	Arg	Leu	Cys	Pro	Thr	Val	Gln	Leu	Glu	Asp
		275					280					285			
Ile	Arg	Asn	Leu	Gln	Asp	Leu	Thr	Pro	Leu	Lys	Leu	Ala	Ala	Lys	Glu
	290					295					300				
Gly	Lys	Ile	Glu	Ile	Phe	Arg	His	Ile	Leu	Gln	Arg	Glu	Phe	Ser	Gly
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Leu	Ser	His	Leu	Ser	Arg	Lys	Phe	Thr	Glu	Trp	Cys	Tyr	Gly	Pro	Val
				325					330					335	
Arg	Val	Ser	Leu	Tyr	Asp	Leu	Ala	Ser	Val	Asp	Ser	Cys	Glu	Glu	Asn
			340				345						350		
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	370					375						380			

Asp Leu Leu Ile Pro Lys Phe Phe Leu Asn Phe Leu Cys Asn Leu Ile
 385 390 395 400
 Tyr Met Phe Ile Phe Thr Ala Val Ala Tyr His Gln Pro Thr Leu Lys
 405 410 415
 Lys Gln Ala Ala Pro His Leu Lys Ala Glu Val Gly Asn Ser Met Leu
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 Leu Thr Gly His Ile Leu Ile Leu Leu Gly Gly Ile Tyr Leu Leu Val
 435 440 445
 Gly Gln Leu Trp Tyr Phe Trp Arg Arg His Val Phe Ile Trp Ile Ser
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 Phe Ile Asp Ser Tyr Phe Glu Ile Leu Phe Leu Phe Gln Ala Leu Leu
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 Thr Val Val Ser Gln Val Leu Cys Phe Leu Ala Ile Glu Trp Tyr Leu
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 Pro Leu Leu Val Ser Ala Leu Val Leu Gly Trp Leu Asn Leu Leu Tyr
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 Tyr Thr Arg Gly Phe Gln His Thr Gly Ile Tyr Ser Val Met Ile Gln
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 Lys Lys Ala Ile Ser Val Leu Glu Met Glu Asn Gly Tyr Trp Trp Cys
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 Arg Lys Lys Gln Arg Ala Gly Val Met Leu Thr Val Gly Thr Lys Pro
 545 550 555 560
 Asp Gly Ser Pro Asp Glu Arg Trp Cys Phe Arg Val Glu Glu Val Asn
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 Trp Ala Ser Trp Glu Gln Thr Leu Pro Thr Leu Cys Glu Asp Pro Ser
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 Pro Lys Glu Asp Glu Asp Gly Ala Ser Glu Glu Asn Tyr Val Pro Val
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 Gln Leu Leu Gln Ser Asn
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